

Supplement of Atmos. Chem. Phys., 19, 4257–4268, 2019  
<https://doi.org/10.5194/acp-19-4257-2019-supplement>  
© Author(s) 2019. This work is distributed under  
the Creative Commons Attribution 4.0 License.



*Supplement of*

## **Permafrost nitrous oxide emissions observed on a landscape scale using the airborne eddy-covariance method**

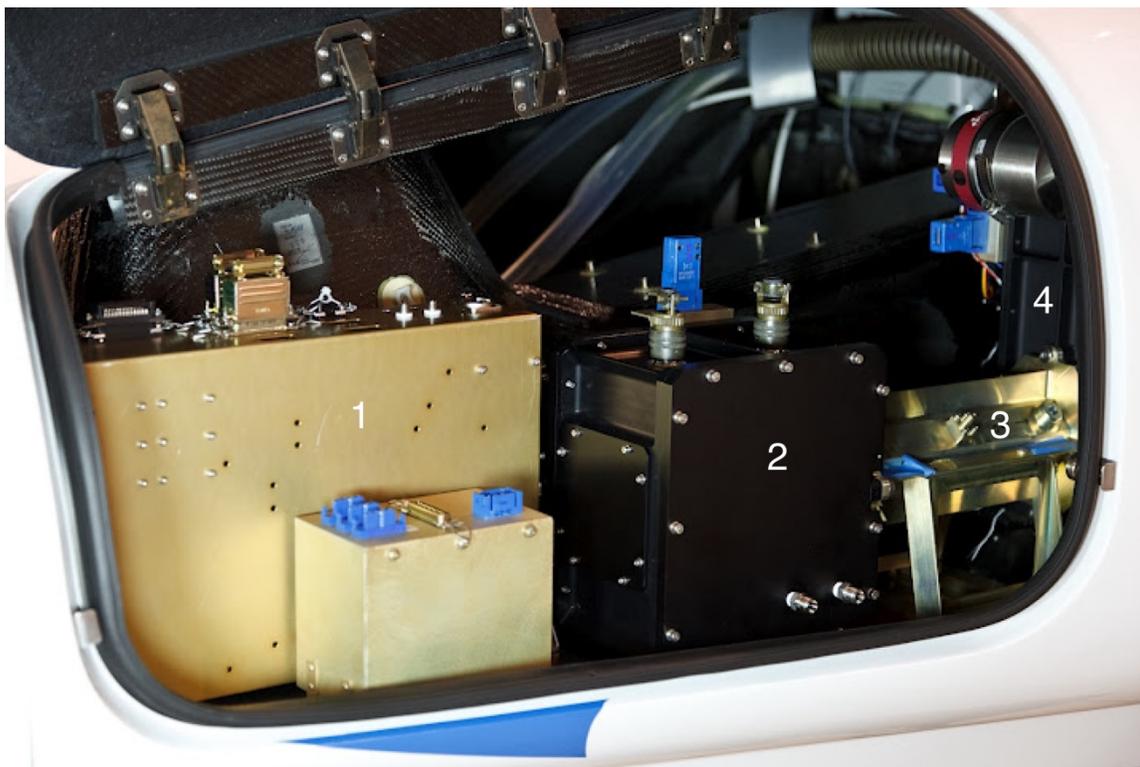
**J. Wilkerson et al.**

*Correspondence to:* Jordan Wilkerson ([jwilkerson@g.harvard.edu](mailto:jwilkerson@g.harvard.edu))

The copyright of individual parts of the supplement might differ from the CC BY 4.0 License.

5

10



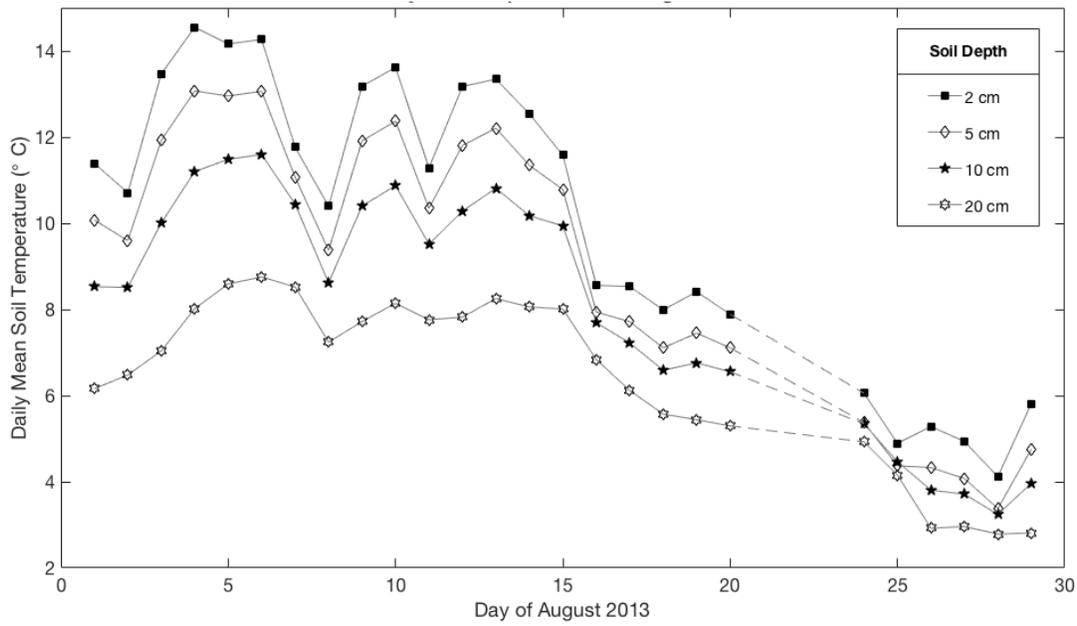
15

**Figure S1.** Image of  $\text{N}_2\text{O}/\text{CH}_4/\text{H}_2\text{O}$  instrument in aircraft's luggage bay, which shows 1) electronics board, 2) detector pressure vessel, 3) detection cell, and 4) laser pressure vessel. Electronic cables were removed for clarity. (Referenced in Section 2.2)

20

25

30



**Figure S2.** Daily mean soil temperatures at 2, 5, 10, and 20 cm depths. Each temperature shown is based on averaging 3 temperature probe sites located in the vicinity of the flux tower and then averaged for the full day. August 21-23 are missing because the flux tower platform was not being operated at that time. (Referenced in Section 3.3)

5

10

15

20

25

30

35

**Table S1. In-flight precision and observed flux averages with 99% CI range.** Second column lists flight-by-flight precision from in-flight calibration data (as determined by Eq. (1)). Spatially averaged fluxes are presented with bootstrap-derived 99% confidence intervals in parentheses. (Referenced in Sections 2.2 and 3.3)

Flight date DD.HH	$\sigma_{\text{N}_2\text{O}}$ (ppb Hz <sup>-1/2</sup> )	Mean N <sub>2</sub> O flux ( $\mu\text{g N}_2\text{O m}^{-2} \text{s}^{-1}$ )
25.18	0.30	0.05 (0.016, 0.097)
27.11	0.53	-0.01 (-0.053, 0.045)
27.19	0.58	0.015 (-0.003, 0.040)
28.10	0.27	0.10 (0.049, 0.160)
28.15	0.44	0.04 (-0.002, 0.103)
All flights		0.043 (0.017, 0.063)